

Integrated Electric and Magnetic Compact Sensors

Compact Sensors Provide Intelligence Gatherers with Better Signals Faster



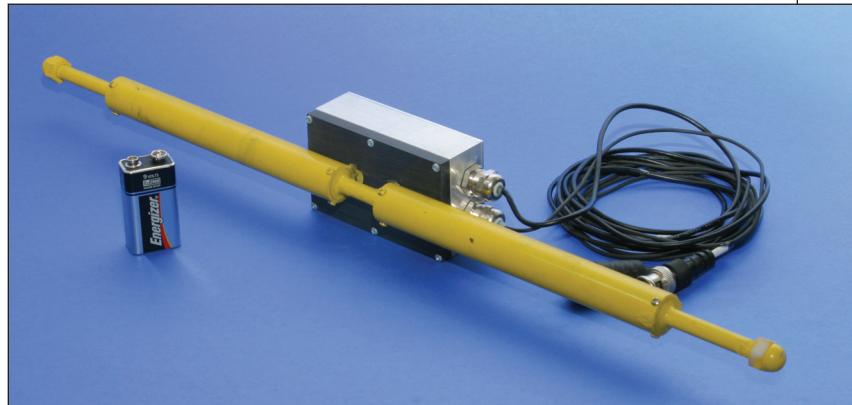
Technology and Innovation

Under the DARPA SBIR program, Quantum Applied Science and Research, Inc. (QUASAR) built and optimized an advanced integrated electric and magnetic sensing device. This device is the first with electric and magnetic sensors integrated into a single unit which can produce a better record of the signal of interest, provide better noise cancellation techniques, and shorten complicated set-up times. Being able to move and hide the device quickly is especially important to military personnel working in hostile territory.

QUASAR's sensors offer the additional advantages of being much more compact and deployable than previous technology, allowing for the construction of unique and convenient sensing systems. The company's expertise in isolating signals of interest from "noise" (other signals picked up by the sensors), in combination with the high-level sensitivity of the devices, allows QUASAR's technology to deliver measurements that were previously unobtainable. Intelligence gatherers are the primary military end users of the technology funded by the DARPA SBIR. The primary commercial end users are expected to be organizations interested in lightning detection technology and Earth resource exploration.

Joint Collaborations

For this sensor technology, QUASAR worked with a major prime contractor involved in DARPA's Counter



Magnetic Sensor

Underground Facilities (CUGF) program and SBIR customers. QUASAR's main role was to provide the sensors for the CUGF project. Research accomplished under previous DARPA SBIRs enabled QUASAR to win the subcontract. Subsequently, DARPA awarded the current Phase II SBIR which has funded sensor development, construction, and testing.

Lessons Learned

- Although the SBIR program promotes research, be sure to focus on a specific customer problem so that the technology is transitioned to end users successfully.
- Develop a core technology platform and use appropriate DARPA programs to improve it. Avoid simply responding to solicitations.
- Do your homework. Read solicitations carefully, then connect with the DARPA technical point of contact to be sure that the proposed technology meets the need that prompted the solicitation.



Integrated Sensor in the field

- Continuously investigate new applications for the technology to broaden its appeal, increase the amount of funding available, and assure continuity of funding.

Economic Impact

The original DARPA Phase II SBIR award funded improvements to the company's sensors as well as the integrated prototype. Results achieved with the improved sensors and the existence of the prototype led to increased funding for an airborne sensing version. Both military and commercial airborne sensing applications have potential.

Approximately 50 percent of QUASAR's technology development funding came from DARPA. The compact ground sensors SBIR provided a substantial portion of the company's revenues. QUASAR's management team anticipates that follow-on work from this program will continue to play a major role in the company's growth. The company has a patent pending on its unique integrated electric and magnetic sensing technology, as well as a Continuation-In-Part (CIP) of that application using the technology for lightning detection.

About the Company

Quantum Applied Science and Research, Inc. is located in San Diego, California, and currently employs 28 people. Annual revenues of approximately \$4 million represent a 24 percent increase from the previous year.

QUASAR provides noninvasive sensors integrated with precision hardware and sophisticated, robust algorithms to produce systems that output information about cognitive and physiological states. QUASAR plans to offer full sensor systems and services, including all stages of data collection.

QUASAR maintains an 11,500 square foot facility with a comprehensive range of advanced electronic instrumentation, including state-of-the-art electric and magnetic field modeling capabilities, calibration systems, and a double-shielded, climate-controlled, RF-screened room, rated to provide 120 dB of electrostatic shielding at frequencies below 1 kHz. QUASAR performs all of its development, manufacturing, and marketing of complete sensing systems from its San Diego facilities. ■

Company Information

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